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Intergenerational Solidarity: Strengthening Economic and Social Ties

Background Paper

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Towards a more balanced interchange among generations

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Abstract

As people live longer, the net of family and household relations that once secured support and assistance well into old age is withering: fewer descendants, and less resistant family ties risk to deprive the old of the help they need, when they most need it. On the other hand, welfare systems, despite a generally good performance in the developed countries in the recent past, are now under stress, because of the growing imbalance between contributors and beneficiaries. One of the options available to redress this imbalance is to adapt threshold ages dynamically, as survival chances increase.

Introduction

Interchange among generations is a very complex subject. Firstly, most of this interchange takes place in the private sphere, is immaterial (and therefore difficult to measure), and goes unnoticed even in the best surveys. Secondly, information on this topic is not only deficient, almost by definition, but is also only recent and, normally, referred to but a few and selected countries. Thirdly, this interchange is profoundly different in different contexts and cultures, because it depends, among other things, on how high each subject (and each item given or exchanged) ranks in the social scale of values.

In this paper I will try to say something about the external conditions that surround this intergenerational interchange, separating the micro from the macro sphere. I will discuss the micro-sphere first, but put more emphasis on the macro sphere, in part because it seems to be gaining importance, as families and nets of kin progressively shrink, and in part because it appears to me to be almost the only domain where policy action can be taken, if one finds some of the current tendencies undesirable and wants to try and redress them.

The micro sphere: less cohabitation and, in the future, less availability of kin

What is currently happening at the micro level (individuals, households and families) has contrasting tendencies, but, all in all, points towards smaller interchange among generations. On the one hand, the young are retarding the moment when they leave the paternal house: this delay is more pronounced in some countries (especially in the "Latin"

area, around the Mediterranean See), but is now evident almost everywhere in the developed countries. The reasons are complex and not always good, or noble: youth unemployment, longer education, better relationships between generations, "exploitation" on part of the young of the resources of the old, etc. In all cases, this is an example of longer and closer interconnections between generations than was observed in the past. Also worth considering is the fact that so many more people are living into old, and sometimes very old, ages than was the case before. Having members of four generations in a family (for instance: child, mother, grandmother, great-grandmother) is no longer so rare an event, even if later fertility reduces the frequency of these cases. The co-presence of several generations originates a complex web interchange and permits to meet several family needs "internally", on a mutual basis (baby sitting, shopping, care, help with administrative matters, etc.). In short, it facilitates closer connections and relations among the different generations.

But all the other phenomena point in the opposite direction: of smaller interchange among generations. Households are much smaller now that they were in the past. For instance, in Italy in 1861 there were 4.5 members per household, on average, but there are only 2.5 today, which is very much in line with what is happening in the rest of the developed world, and in a good number of developing countries (UN, 2005). Lower fertility is certainly one of the causes, but so is the diminished cohabitation among those who do not belong to the same nuclear family (i.e. father, mother and children). Unmarried aunts and cousins, widowed grandparents, and the like, who were once relatively frequent in households, now tend to live independently, typically in very small, often one-person households.

Living alone was an exception in the past, but is now becoming normal for the aged in the developed countries: in Italy, for instance, 25 per cent of all households are made up of one person only, and this is almost always an elderly, most frequently an elderly woman. Basically the same happens also in the rest of the industrialised world. Mortality has receded drastically, and so has the incidence of widowhood (at least until very old age), but separations and divorces are on the rise, and, in the long run, they will more than compensate for lower mortality, leading to a greater proportion of elderly people who live alone. There are reconstituted families and unmarried cohabitations, to be sure, but these prove even less resilient to the usury of time than "ordinary" marriages have recently become. In other words, neither the traditional family nor its alternatives seem to constitute a valid shelter against the risk of being alone in the final years of one's life.

The availability of relatives and kin is following an analogous "wave". For some time still, there will be more of them, because fertility has been high in the past (the "baby boomers" in the developed world; the children born during the demographic transition in the developing world), while mortality has been low and decreasing. But, progressively, the new cohorts that are being borne will have fewer and fewer "horizontal ties" to rely on: siblings and cousins are becoming a rare good. Besides, more and more men and women will remain childless throughout their lives, and even those who did have children, but experienced marriage breakdown and did not get child custody, saw a withering of their relationships with them, and can now rely on considerably less support and interchange than parents whose marriage did not break down.

An irreversible trend towards lower intergenerational interchange?

It is not easy to list and rank the causes of this abrupt and (demographically speaking) rapid change in families and in household structures. In part, it is brought about by external constraints. Living in an urban environment, for instance, makes space expensive, and a large house is a luxury that only a few can afford. Another example is work opportunities, that may become available far from the home town (sometimes even far from the home country), and thus make intergenerational cohabitation or proximity more difficult. Even within families, the work ambitions of both partners are frequently difficult to reconcile (because of distance and, sometimes, work schedules), and rank among the causes of increased couple dissolution.

But it is also probable that people have a preference for living on their own, or, at least, in very small units and "with a private part", when they can afford it: cohabitation may have pleasant moments, but it may also become a constraint that most people would rather avoid. The Living-Apart-Together (or *LAT*) option for "modern" couples seems to provide a good solution: two adult people, frequently with a previous experience of cohabitation (with someone else) decide to put up a sentimental relationship, which may be close, but where each partner preserves his or her own sphere of autonomy and independence, and where moments of total isolation from the other are always possible. This solution is costly (no economies of scale are possible), and demanding (each partner must have his or her own living space, and must be financially independent), but, as standards of living increase, more and more people can afford it. In several ways, this solution seems to be consistent with one of the points (or perhaps the myths) that characterize the so called "second demographic transition": the great prevalence of the individual and its needs over the needs and interests of larger units, for instance households and societies (Van de Kaa, 2004).

Intergenerational relationships, too, appear to be moving in this direction: each member tends to live in his or her own dwelling, although proximity with kin is valued (Tomassini, Wolf and Rosina, 2003).

It may be argued that, even when they do not live in the same dwelling, family members belonging to different generations may still have close interchange and strong mutual help. Again, this claim is hard to prove or disprove in this particular domain, where interchange is frequently immaterial and anyway poorly measured. The scarce indications that we have suggest that when the aged parents (or just one of them) live independently, but close to at least one of their adult children, exchange and mutual help, especially in moments of particular need, do take place. With distance, however, while contacts (e.g. telephone calls) may remain frequent, actual help becomes more difficult and rare, typically confined to specific, exceptional circumstances. And for "broken" families (with a divorce, and possibly a remarriage), intergenerational contacts appear to be rarer still, and less close.

Demographic change: ageing with fixed threshold ages

Let us now drop the micro perspective, and turn towards the macro sphere. The world population is ageing at an unprecedented pace, has already aged more than ever in human history, in virtually all of the countries, both developed and developing, and will age further and, in most case, substantially. The old age structure that is taking shape is not a

temporary phenomenon, because its determinants, low fertility and longer life spans, appear to be permanent characteristics of modern populations (UN, 2007b).
Although population ageing is uncontroversial, opinions differ about how to best measure it. One way is to see how age pyramids change as time passes[1]. Another possibility that does not require specific a priori assumptions is to build indexes that encompass the whole range of the ages: for instance the median or average age.
But when one focuses on the specific subgroup of the "aged", the need arises to draw a line at a given age β (e.g. β=60, or 65, or something else), that separates the "old" from the rest of the population and this choice is, by definition, arbitrary. Beyond that, and much worse than that: the almost universal, simple choice of keeping this arbitrary threshold constant over time is scarcely defensible, and is indeed probably incorrect. It relies on the implicit assumption that people aged β in year t, $P_{\beta,t}$, are identical, in terms of physical or intellectual efficiency, to those aged β in year u (with $u>t$), or

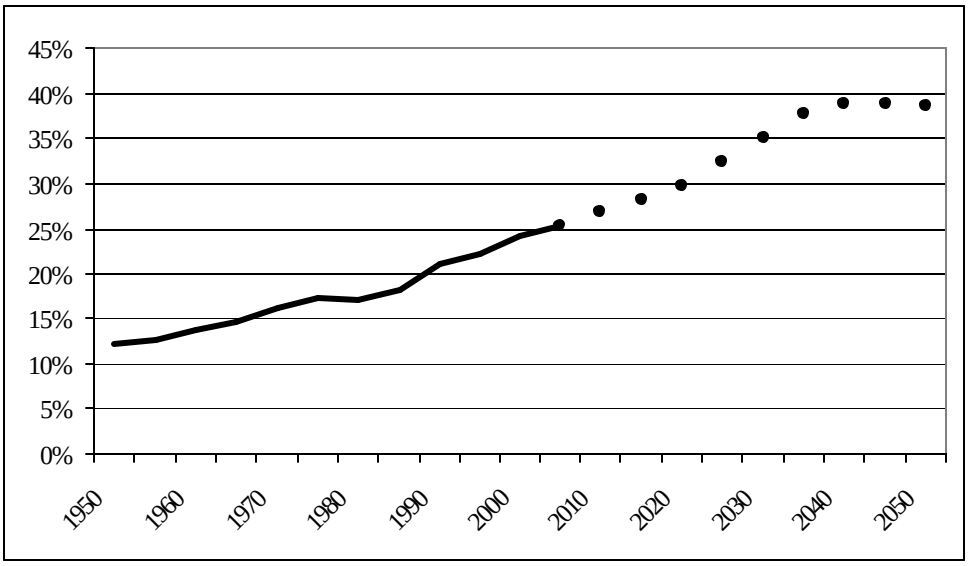
Assumption 1 (leading to a constant β) $\quad E(P_{\beta,t})=E(P_{\beta,u})$
where E=efficiency, P=persons; β=threshold age; u,t time ($u>t$)

This assumption is difficult to prove, or disprove, without very analytical information on individual characteristics, like strength, memory, dexterity, health, etc. But there is at least one domain where good age-specific information is normally available: survival. On the basis of survival chances, it is relatively easy to check whether assumption (1) holds. In order to do this, it appears preferable to consider survival probabilities not in terms of risks of death *at* that specific age, but, rather, *from* that age on. To this end, the best single indicator appears to be the residual average length of life, or life expectancy at that age (e_β)
As an example, consider Italy in the 2006 release of the UN World population prospects (UN, 2007a), and take, as a simple measure of ageing, the share of the population aged 60 and over[2]. This proportion increases from 12 per cent in 1950, to 25 per cent in 2005, to 39 per cent projected in 2050 (Figure 1).

[1] There are several dynamic age pyramids on the internet: see, for instance, the site of the INED (http://www.ined.fr/fr/tout_savoir_population/animations/pyramide_ages/), the site of the US Census Bureau (http://www.census.gov/ipc/www/idb/pyramids.html), etc.

[2] Qualitatively, the same results emerge for every other developed country, for virtually all of the developing countries, and for every conventional threshold age. For this example, I took the data from the UN World Population Prospects online database at http://esa.un.org/unpp/

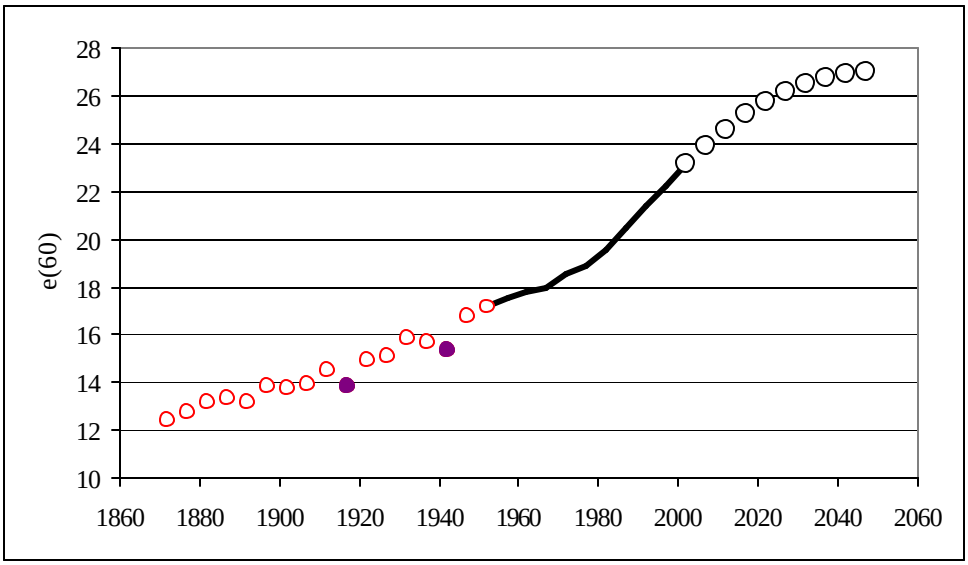
Figure 1 - Proportion aged 60+. Italy, 1950 to 2050



Source: own elaborations based on UN (2007a)

However, consider also figure 2, showing how long, on average, an Italian aged 60 still had left to live, on the basis of the cross-sectional information on survival chances available at that time. This residual life expectancy (e_{60}) increases from about 17 years in 1950, to about 23 in 2003, to possibly 27 in 2050. Moving back in time, e_{60} becomes progressively smaller (with jumps in war years), down to only about 12 years in 1872.

Figure 2 - Life expectancy at 60 in Italy (both sexes combined), 1872 to 2050



Source: Human Mortality Database[3] (http://www.mortality.org/) and author's extrapolations

What figure 2 tells us, in short, is that having 60 years does not always amount to the same in terms of how resistant an average person of that age is: one thing is to be 60 in year 2000, quite another is to have that age a century before, or later. Why, then, stick to the 60-year threshold (or, for that matter, to any other *constant* threshold) for the definition of old age? Shouldn't this threshold be adjusted progressively, as external conditions change? And, if so, by how much, and on what basis?

Should threshold ages change in time?

One possible objection to using moving threshold ages is that a longer life expectancy only tells us that people have more time left to live, but not that this time is "better". Basically, this means rejecting the notion that survival (measured by e_{60} in figure 2) is a good indicator for the "efficiency" considered in Assumption 1.
Unfortunately, there aren't many reliable, widespread and comparable, alternative indicators to support or reject the idea that the residual life expectancy and "efficiency" are positively correlated. The best information probably derives from the surveys on health and disability that are now becoming common in the developed nations. Unfortunately, they are still rare in the developing world, and their comparability is questionable, even within the same country (Cambois, Robine, Mormiche, 2007), much more so worldwide. However, the uncertain indications that one can get from them tend to confirm what one would *a priori* expect, that health conditions get progressively better

[3] The data in the Human Mortality Database is not totally consistent with what Istat reports for Italy in the most recent years (http://demo.istat.it/). In this paper, I will stick to the HMD for illustrative purposes, and because of its long historical series, without claiming its superiority over other sources. Alternative databases lead to different values, but to identical trends, which is what interests us here. Extrapolations have only an illustrative value, and they do not constitute a true and reliable forecast.

as the average length of life increases (Egidi, 2003; Cambois, Clavel and Robine, 2006). Quantity and quality appear to have been moving in the same direction, in recent years, although not necessarily at the same speed.
Therefore, hard evidence on survival, especially at old age, and more uncertain indications on health and disability, both suggest that threshold ages should be adjusted dynamically as conditions change. But how?

Constant residual life expectancy over time

One possible criterion, implicitly suggested in Figure 2 and sometimes advocated,[4] is to adjust the threshold age β so that the residual life expectancy remains constant over time. In formula

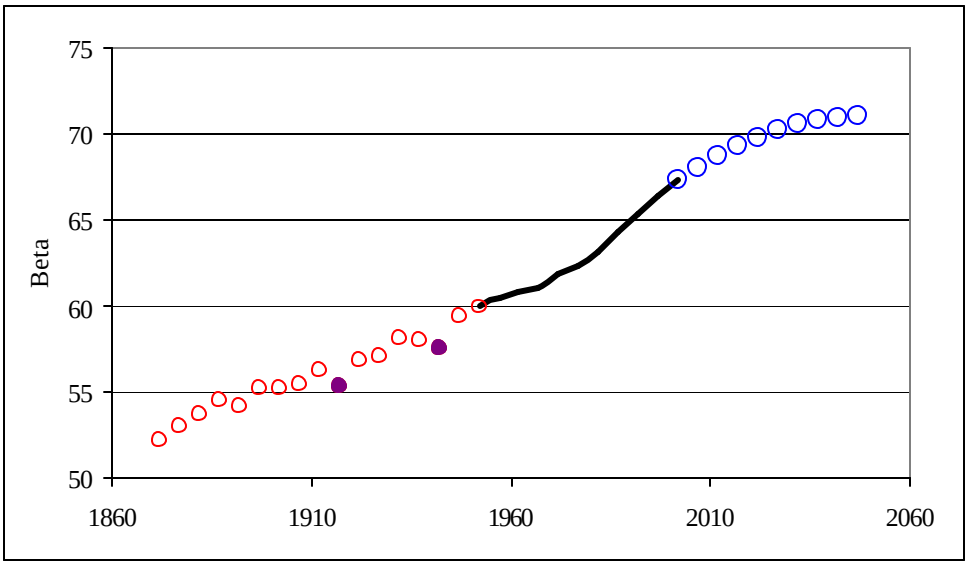
Condition 1) $\quad e_{\beta(t)} = \text{constant} \quad \forall t$

The starting point $\beta_{(0)}$ is still arbitrary, but, at least, what happens next is consistent with the initial choice, given condition (1)[5]. For instance, let us still refer to Italy, and let us arbitrarily decide that $\beta_{1950}=60$. This means that we are taking 60 years as our threshold for old age in 1950, when the Italians had, on average, still 17.2 years left to live. Figure 3 shows what happens to this threshold when one applies condition (1): β must increase from 60 in 1950 to about 67.5 in 2001, and then to 71 in 2050, according to an extrapolation consistent with the data of Figure 2. Backwards, β decreases more or less regularly, down to about 52 in 1872.

[4] Egidi (2003) asserts that this idea was first put forth by Norman Ryder, back in 1975.

[5] I am disregarding here the additional difficulty that cross sectional life tables do no necessarily represent the actual survival conditions of any cohort. However, they can be taken to represent a reasonable guess about what is going to happen in the future to those who are alive in any given moment.

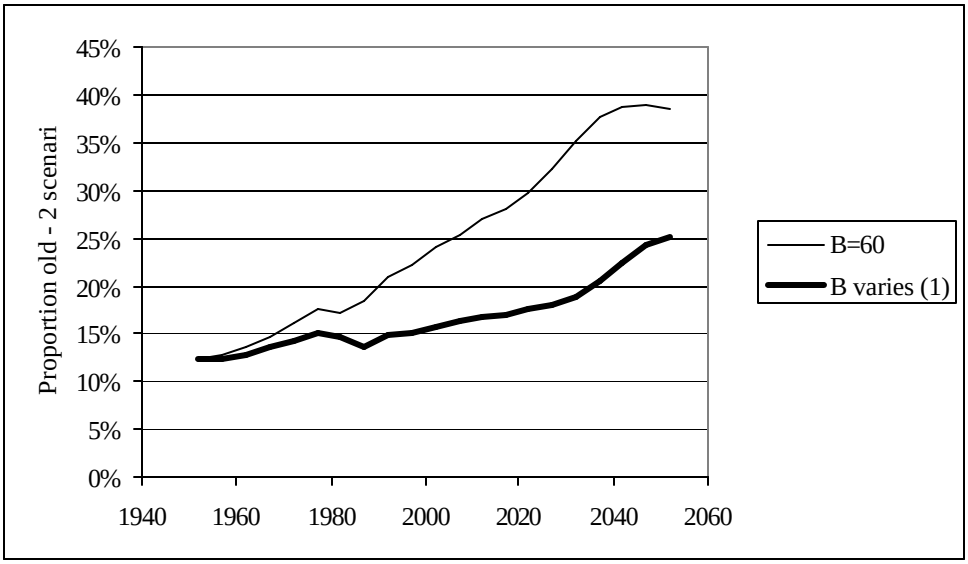
Figure 3 - Threshold age β that keeps the residual life expectancy constant at 17.2 (e_β=17.2). Italy (both sexes combined), 1872 to 2050



Note: e_{60}~ 17 in 1950 in Italy. Source: author's elaborations and extrapolations on the Human Mortality Database (http://www.mortality.org/)

When considered over a long time span, these changes in the threshold age appear very large, possibly even too large: about 19 years in less than two centuries. In the meantime, however, life expectancy at birth has increased by much more, both in absolute and in relative terms: from about 30 in 1872 to a current value of about 80, to a projected value in 2050 that might be close to 86. In comparative terms, therefore, the increase in β according to condition (1) is not so impressive, after all.
Note, however, that even this major shift in β does not stop Italy from ageing, although, in this case, the process is much milder than with the "constant threshold age scenario". The proportion old ($P_{\beta+}/P$), 12 per cent in 1950, increases to only about 25 per cent in 2050, instead of skyrocketing to 39 per cent (Figure 4).

Figure 4 - Proportion old with constant threshold age β=60 and with moving threshold age β, according to condition (1), that the residual life expectancy be constant at 17.2 (e_β=17.2). Italy (both sexes combined), 1872 to 2050



Note: e_{60}~17 in 1950. Source: elaborations based on UN (2007a) and on the Human Mortality Database (http://www.mortality.org/)

Constant residual life expectancy over time: a critique

The "constant residual life expectancy" criterion, however, is not without shortcomings. Imagine the average life span as a segment, the length of which increases as survival conditions improve. Now image that the residual life expectancy is the final part of this segment, and that we want to keep this final part constant, as the segment (=life expectancy) increases over time. By definition, the ratio of this (constant) final part to the whole segment must decrease. In short, and from a life course perspective: keeping the residual life expectancy constant reduces the proportion of life that each individual spends in the condition conventionally defined as "old age".

Incidentally, this choice tends to reduce the proportion old in the population, although, in practice, this does not necessarily happen, or at least not until a very long time: for instance, it does not show in Italy, in the years 1950-2050 (see Figure 4). The reason is that population structures are also modelled by fertility and migration, not considered in this criterion, and Italy in 1950 was at the end of its demographic transition, and was characterized by a very young age structure, which could not last long. Another, somewhat less important, reason is that, by referring to the notion of life expectancy at age β, or e_β, we forget that only a fraction of a cohort of newborns reaches age β. In fact, it is preferable to work with the notion of person-years lived beyond age β, or T_β, which, when related to T_0, or total person-years lived in the population, takes into account the survival experience of the whole cohort.

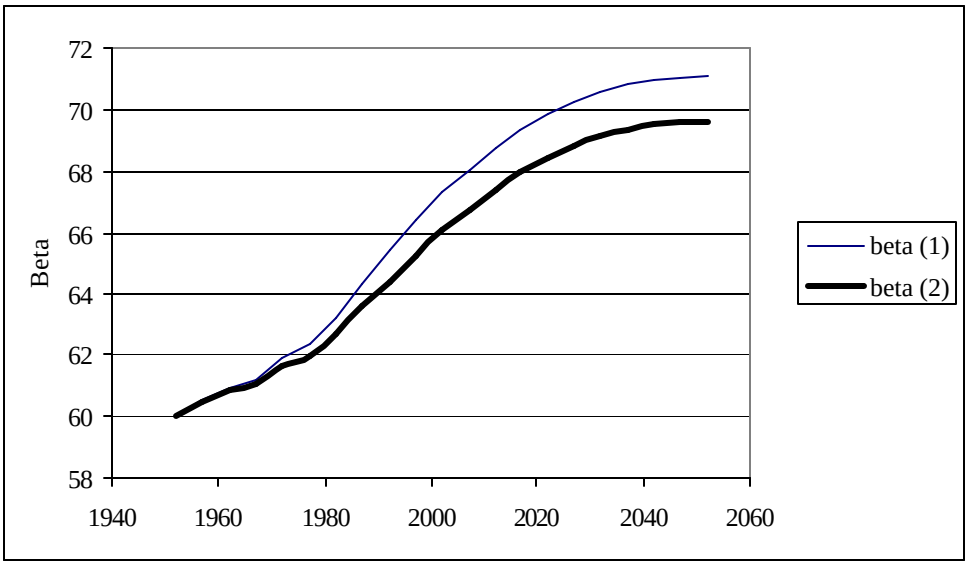
Constant proportion of life spent in old age

These considerations suggest an alternative way of letting the threshold age β move over time: one may wish to keep "old age" in a *constant ratio* with the whole life span (De Santis, 2006). The underlying idea is that we may wish to spend a given proportion of our lives in old age: say, 25 per cent, on average. Geometrically, this corresponds to preserving a *constant ratio* between the length of the final part of the segment and the whole segment. With the symbols of a life table, this corresponds to stabilising the ratio T_β/T_0 at the desired level, by adjusting β.
Stabilize at what level? As usual, the starting point is arbitrary, but all the subsequent choices are consistent with it, and with criterion 2), that is:

Condition 2) $\quad T_{\beta(t)}/T_{0(t)} = \text{constant} \ \forall t$

Again, let us take Italy as an example, and 1951 as our starting point, and let us begin with the arbitrary threshold of 60, in 1951. In that year, in the Human Mortality Database, we read that in Italy (for both sexes combined) $T_0 \tilde{} 66.3$; $T_{60} \tilde{} 13.1$, and, therefore, $T_{60}/T_0 \tilde{} 19.8$ per cent.
With a few manipulations on the observed and projected data, one finds that, according to condition (2), β should not have stayed constant over time in Italy (Figure 5). On the contrary, it should now be at about $\beta_{2000}=66.1$, and could possibly reach a value of $\beta_{2050}=69.6$, at the end of our projection period.

Figure 5 - Threshold ages β_1 and β_2 that satisfy conditions (1) and (2), respectively. Italy (both sexes combined), 1950 to 2050

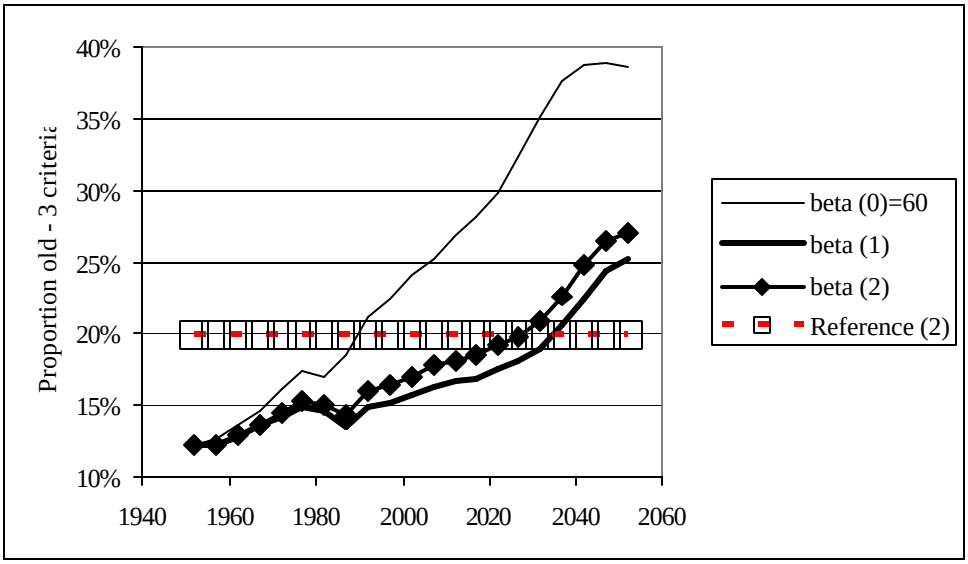


Note: in 1950, for condition 1, e_{60}˜17; for condition 2, T_{60}/T_0˜19.8 per cent. Source: elaborations based on UN (2007a) and on the Human Mortality Database (http://www.mortality.org/)

Figure 5 suggests that condition (2), too, pushes β upwards, but less than condition (1): the difference is trivial when mortality is high to moderate (e.g. as in Italy before 1950 - not shown in Figure 5), but becomes relevant once mortality is low: roughly speaking, when life expectancy at birth passes the threshold of 70 years. In Italy, for instance, at the end of the projection period, the difference between the two cases is about 1.5 years: the threshold for old age (60 years in 1950), reaches 71.1 years if e_β is to remain unchanged (here, at e_β˜ 17 years - condition 1), but stops at 69.6 years if it is the proportion of time spent in old age in the population that remains unchanged (here T_β/T_0˜19.8 per cent - condition 2).

What happens to the proportion old in this case? Figure 6 shows what could have been imagined on theoretical grounds: that the proportion old is somewhat higher with criterion (2) for old age: about 27 per cent, as opposed to about 25 per cent with criterion (1), but still substantially less than the 39 per cent that would materialize without adjusting the threshold age to the improved survival conditions.

Figure 6 - Proportion old in three scenarios for old age threshold (β=60; β varies according to criteria 1 and 2 respectively: see text. Italy (both sexes combined), 1950 to 2050



Source: elaborations based on UN (2007a) and on the Human Mortality Database (http://www.mortality.org/)

Notice that with criterion (2) we know what proportion old to expect in the population: it is precisely the target proportion T_β/T_0 (=19.8 per cent in this case). The actual value fluctuates around this reference value, depending also on the past values for fertility and migration. In the case of Italy, for instance, because of the low fertility of the past 30 years, the actual proportion old will soon (in 2030) become greater that its reference value, and stay greater than it for several more years (not shown in the picture). Notice, also, that this criterion permits one to substantiate the notion of "demographic bonus" (or "demographic dividend", or "window of opportunity") that analysts frequently use in the discussion of the effect of the demographic transition (e.g. Mason and Lee, 2004). Whenever the old-age ratio *O*/*P* in the population is below its target value (that is, there are fewer elderly than one would normally "expect"), the population is benefiting from a demographic bonus, and the larger the gap between actual and reference value, the bigger the bonus.

What about the young?

Obviously, to get a complete picture, one should also consider the other end of the age range: the very young. Here, too, the same alternatives emerge: either to refer to a constant threshold age α (separating the young from the adults), or to use a moving one. In the latter case, again, there are two options: one is to measure life expectancy as young (e_y) in a given year with a given threshold age, and keep that value constant over time. For instance, taking year 1950 and α=10 as a starting point, one finds that $e_{y,1950}=e_{0\text{-}10,1950}$=9.29. For other years, on needs to adjust α in such a way as to guarantee that e_y

($=e_{0-\alpha}$) remains constant at 9.29. But, in practice, this has only a very trivial effect on α, which *diminishes* a little bit, and remains just below 10.

The alternative, which I find preferable, is to keep a constant ratio between the life spent as a young and the total life time, which translates into a constant ratio T_y/T_0. Again, starting with α=10 (in Italy, in 1951), one finds that T_{0-10}=9.29; T_0=66.3, and, therefore, $T_{<10}/T_0$=14 per cent. This becomes our target value: for all the other years, we need to adjust α until we find the value that produces $T_{0-\alpha}/T_0$=14 per cent. In practice, α increases only slowly, up to about α=12 in 2050.

In short, with constant α=10, the proportion young decreases very rapidly in Italy: from 17 per cent in 1950, to 9 per cent in 2000, to 8.7 per cent in 2050. With criterion (1), constant life expectancy as young, things go just slightly worse, because the threshold age α diminishes a little bit in the course of time, as survival conditions improve. Finally, with criterion (2), constant proportion of life spent as a young, the threshold age climbs to α=12 in 2050, and the proportion young reaches almost 11 per cent. In other words, it remains consistently below its target value (of 14 per cent), due to persisting low fertility, but at least does not plunge to 8,7 per cent as with the constant α scenario.

What do all these calculations tell us? That, within limits, the proportion young is influenced by the fact that standard measures, with fixed threshold ages, fail to keep into account that the average life span is getting longer. The only remedy suggested thus far (constant life expectancy in a given age bracket) works reasonably well for old age, but very poorly for the young, for whom it even makes things slightly worse. The solution proposed here (constant proportion of one's life time spent in any given condition: young, adult, old) works well in all cases. This solution has one additional merit: it tends to maintain the relative share of all the age classes at a given, predefined level. In actual populations, however, these proportions fluctuate, because of the vagaries of fertility and migration movements. In short, there is a part of ageing that is not due to mortality and that the adjustment of threshold ages cannot absorb.

Conclusions: poor old people?

After World War II, the standard of living of the population has greatly improved almost all over the world, even in recent years in the developed countries (despite some recent slow down), where ageing is most worrying (Maddison, 2003). Improvement seems to have been relatively well distributed among age classes, although this distributional part is not measured perfectly, or everywhere (Smeeding, 2003). If anything, however, the standard of living of the aged seems to have evolved more rapidly than that of the rest of the population - and sometimes even at the expense of the standard of living of the young (especially if living in one-parent households). This absolute and relative improvement owes in large part to the massive transfer programs that the modern welfare states have set up, especially free (or heavily subsidized) health care systems and pension schemes. But these arrangements, originally conceived for a small, supposedly needy minority of the population, are now addressed to an ever growing share of it, which might become as high as 40 per cent in some of the most rapidly ageing countries (Italy, Japan, etc.). This appears to be too much, even for the richest of the welfare states.

Although each country must find its own way to solve the problem of how to grant a decent living to those who are too old to autonomously secure themselves an income, it does not seem out of place to also stop and wonder just who is "too old for work", and

therefore in potential need of transfers. If thresholds for old age are set once and kept constant forever, the "aged" will inevitably increase, and this will translate into higher taxes on the working population, or lower benefits for the old (e.g. lower pension income), or a combination of the two.

If these thresholds are adjusted only when pressure is too high (the scenario which I think is the most likely to materialize, if I am to judge from the recent debate on the national pension systems all over the industrialized world), the movement will be in the right direction, but progress will be painful and irregular, and inequalities and injustice will emerge in the comparison between adjacent cohorts, because some of them will disproportionately benefit or suffer from the sudden changes in the "rules of the welfare game".

A possible alternative, which also happens to be my favourite, is to adjust threshold ages little by little, so as to keep pace with the increase in life span. This option is technically easy, once the criterion has been decided and reliable information on survival is available. But, from the point of view of social acceptability, it is extremely difficult: it means, for instance, that people must work a little longer every year and start receiving their pension benefits later and later; that free access to certain health programmes is progressively postponed, etc. Although change in this direction is difficult, it is not unreasonable or impossible, since life is getting longer, and health conditions apparently better at all ages, both physically and mentally.

The discussion in this paper has concentrated mainly on the macro, public sphere, and in particular on the issue of where to draw the line that separates the "old" from the others. This may appear in contrast with the fact that most of the resources for the old come from the private sphere, families in the first place, especially in the developing countries, where public pension schemes are limited in coverage, or totally non existing. The reason is that the private sphere can be observed and studied, but can hardly be manoeuvred towards a given policy goal. Families are the prime supporters for the old, but they cannot be *forced* to be, especially when the number of potential providers is shrinking, and that of potential beneficiaries is rising. And it is precisely the redressing of the deteriorating ratio between these two groups that should, in my opinion, constitute the main objective of a policy aimed at preserving a balanced interchange between the generations.

After all, the best way to prevent the negative effects of ageing is to prevent ageing itself from taking place: with higher life expectancies, this goal can no longer be obtained through high fertility rates, as in the past, but it can at least be approximated with proper movements in threshold ages.

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